DOCUMENT RESUME

ED 424 769 FL 025 564

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TITLE Pedagogy Matters: Standards for Effective Teaching Practice. Research Report 4.
INSTITUTION Center for Research on Education, Diversity and Excellence, Santa Cruz, CA.
SPONS AGENCY Office of Educational Research and Improvement (ED), Washington, DC.
PUB DATE 1998-00-00
NOTE 49p.
CONTRACT R306A60001-96
AVAILABLE FROM CREDE, Center for Applied Linguistics, 4646 40th Street, N.W.; Washington, DC 20016-1859; Tel: 202-362-0700, crede@cal.org
PUB TYPE Guides - Classroom - Teacher (052)
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Academic Standards; Change Strategies; Classroom Communication; Educational Change; Elementary Secondary Education; *English (Second Language); *High Risk Students; Literacy Education; *Minority Groups; Second Language Instruction; *Second Languages; Skill Development; Thinking Skills

ABSTRACT

This paper presents five standards for pedagogy that are applicable across grade levels, student populations, and content areas: joint productive activity; language and literacy development; meaning making; complex thinking; and instructional conversation. These standards emerge from principles and practice that have proven successful with majority and minority at-risk students in a variety of teaching and learning settings over several decades. Indicators are outlined for each standard, which specify action components of the standards and their functions in teaching and learning. Illustrations and examples reflecting the standards and their indicators across a broad range of classroom settings are presented to support a claim of universality for such standards in K-12 majority and minority at-risk students' classrooms. The purpose is to urge standards-based reform to reflect its own recommendation that pedagogy is central to student learning. (Contains 74 references.) (Author/MSE)

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ED 424 769

RESEARCH REPORT 4

PEDAGOGY MATTERS: STANDARDS FOR EFFECTIVE TEACHING PRACTICE

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PEDAGOGY MATTERS: STANDARDS FOR EFFECTIVE TEACHING PRACTICE

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CENTER FOR RESEARCH ON EDUCATION, DIVERSITY & EXCELLENCE

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1998

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RESEARCH REPORT NO. 4
Production: Vincent Sagart and Sonia Kundert
Cover & interior design: SAGARTdesign

This report was written by the author in her capacity as a CREDE Principal Investigator. The work reported herein and the editing and production of this report were supported under the Educational Research and Development Centers Program, Cooperative Agreement No. R306A60001-96, as administered by the Office of Educational Research and Improvement, U.S. Department of Education. However, the contents do not necessarily represent the positions or policies of the National Institute on the Education of At-Risk Students, the Office of Educational Research and Improvement, or the U.S. Department of Education, and you should not assume endorsement by the Federal Government.

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The Center for Research on Education, Diversity & Excellence is funded by the Office of Educational Research and Improvement of the U.S. Department of Education to assist the nation's diverse students at risk of educational failure to achieve academic excellence. The Center is operated by the University of California, Santa Cruz, through the University of California's statewide Linguistic Minority Research Project, in collaboration with a number of other institutions nationwide.

The Center is designed to move issues of risk, diversity, and excellence to the forefront of discussions concerning educational research, policy, and practice. Central to its mission, CREDE's research and development focus on critical issues in the education of linguistic and cultural minority students and students placed at risk by factors of race, poverty, and geographic location. CREDE's research program is based on a sociocultural framework that is sensitive to diverse cultures and languages, but powerful enough to identify the great commonalities that unite people.

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- Research on **instruction in context** explores the embedding of teaching and learning in the experiences, knowledge, and values of the students, their families, and communities. The content areas of science and mathematics are emphasized.
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Abstract

This paper presents five standards for pedagogy that are applicable across grade levels, student populations, and content areas. The five pedagogy standards are *joint productive activity* (JPA), *language and literacy development* (LD), *meaning making* (MM), *complex thinking* (CT), and *instructional conversation* (IC). These standards emerge from principles of practice that have proven successful with majority and minority at-risk students in a variety of teaching and learning settings over several decades. Indicators are introduced for each standard, revealing action components of the standards and their functions in teaching and learning. Illustrations and examples reflecting the standards and their indicators across a broad range of classroom settings are presented to support a claim of universality for such standards in K-12 majority and minority at-risk students' classrooms. The purpose is to urge standards-based reform to reflect its own recommendation that pedagogy occupy a central place in accomplishing all student learning.

Introduction

This decade's standards-based reform movement emphasizes the centrality of teaching in the improvement of student achievement. The reports of the National Commission on Teaching and America's Future [NCTAF] (1996) recognize teaching expertise as the single most important factor in increasing U. S. students' academic success. Research and reports of effective practice confirm the critical relationship between what teachers know and do and what students learn (NCTAF, 1996; Darling-Hammond, 1997). Because of this, standards statements have been generated to guide "competent, caring, and qualified" teaching in curriculum content, induction, student performance, opportunity to learn, and assessment (NCTAF, 1996, p. 3; see also Darling-Hammond, 1997; McLaughlin & Shepard, 1995). These standards, however, remain focused more on developing statements of what students should know and be able to do and less on articulating how teachers are to accomplish such student outcomes. In fact, statements, principles, and standards that directly address effective teaching or pedagogy have remained peripheral in teaching reform (McLaughlin & Shepard, 1995; Noddings, 1997).

This paper presents five explicit standards for pedagogy that are applicable across grade levels, student populations, and content areas. The standards emerge from principles of practice that have proven successful with majority and minority at-risk students in a variety of teaching and learning settings over several decades. Indicators are introduced for each standard, revealing the standard's action components and their functions in teaching and learning. Illustrations and examples reflecting the standards and their indicators across a broad range of classroom settings support a claim of universality for such standards in K-12 majority and minority at-risk students' classrooms.

What Is the Problem?

Increasing effective teaching has emerged as the means to improve schools, meet national education goals, and ensure that all students experience learning success. But, in Noddings's (1997) view, the current reform movement repeats the error of previous decades by neglecting to examine how standards statements respond to the chief question of teachers—how to help students learn everything they are supposed to know. He says that reform continues to focus on what students need to learn but ignores teachers' struggle with how to help them learn it. Experienced teachers struggle with this question no less than preservice teachers, yet there is inadequate pedagogical guidance for either.

Reports indicate that principles of pedagogy and their relationship to teaching and learning theory are generally absent and infrequently modeled within the continuum of teacher development, from preservice through inservice (Dalton & Moir, 1992, 1996; NCTAF, 1996). This is demonstrated in statistics revealing that a quarter of newly hired teachers during 1991 were unprepared to deliver effective instruction, with even higher proportions in urban and rural isolated schools serving minority at-risk students (Darling-Hammond & Falk, 1997). Practicing teachers report that their professional development is generally aligned with reform goals, but the excess number of topics and confusing variety of trainers impede their opportunities for complex skill development (Goertz, Floden, & O'Day, 1996). National surveys and case studies of reform indicate that when school-based reform does attend to improving classroom pedagogy, the efforts are likely to be desultory rather than systematic or focused (Shields & Knapp, 1997).

At the same time, sustained research, analysis, and promulgation of effective pedagogy does exist, primarily in classrooms serving the nation's diverse at-risk students. The lack of focus on this body of knowledge may be due to the fact that U.S. education has mostly attended to mainstream students who are native speakers of English, although English language learners (ELLs) have increased by at least a million K-12 students in the last decade (August & Hakuta, 1997). Because ELLs continue to be treated as exceptions to general statements, there is little appreciation that valid universal statements can be drawn only from the full range of variance in America's increasingly diverse population. This means that general statements about effective pedagogy must grow and be informed by study of those students who have been most dramatically failed by U.S. schools, namely those whose cultures, languages, or dialects diverge from the mainstream of students and teachers. This includes Latino and Asian immigrants, African Americans, speakers of Hawaiian and Appalachian dialects of English, Native Americans, and low-income students across the nation.

Historically, school success has depended on the advantages that families and community institutions provide to children from birth. Many minority and low-income groups have had few language, literacy, or cultural resources in their families or communities that prepared them for success in U.S. schools. But when schools improve their teaching, students—all students—can improve their learning. It is unmistakably clear what forms of pedagogy are effective and what forms are not when teaching students who have not had the the same preparation as mainstream, middle-class students. Principles of teaching that are known to increase at-risk students' school success are equally effective for all students; but for at-risk students, they are vital.

What Is Pedagogy?

Since at least the Civil War, the common tradition of American education has been the "recitation script," in which teachers assign texts and seat-work, assess students' learning, then make the next assignment, producing short recurrent sequences of assign-assess, assign-assess in classrooms led firmly by the teacher with little or no student interaction (Hoetker & Ahlbrand, 1969; Tharp & Gallimore, 1988). Early in this century, individual student activity performed en masse under the direction of the teacher was primarily oriented to producing factory workers (Linder-Scholer, 1996). As this century passed its mid-point, intense efforts were made to promote student achievement through revised curricula, expanded standardized testing, a variety of increased and decreased local control initiatives, and massive federal supports to increase equity and equality of educational opportunity, among a variety of other programmatic and regulatory approaches (Darling-Hammond, 1998).

At the same time, more consideration was given to the social interactions and cultural contexts inside and outside the classroom that influence the development of human language and thinking (Brown, Stein, & Forman, 1996; Cobb, 1994; Piaget, 1971; Tharp & Gallimore, 1988). It became clear that the common tradition relies on cognitive and language development outside of school, in children's homes or in community institutions such as church, Scouts, clubs, or circles concerned with literacy and problem-solving. Without such prior external development, most students are not equipped to learn from the assign–assess pattern of the common tradition (Tharp, 1997). Evidence for this is strong in Hart & Risley's (1995) study comparing language development and school success in children of lower and higher social class. The study revealed the devastating consequences of minimal adult/child interaction time for the school achievement of low-income children. These effects of poverty are intensified for students whose culture places less emphasis on literacy or who do not arrive at school with full English proficiency.

Recent emphases on collaboration, communication, and community for teaching and learning have increased focus on the role of social and cultural factors in student achievement (Brown & Campione, 1994, 1996; Cobb, 1994; Rogoff, Matusov, & White, 1996; Tharp & Gallimore, 1988; Vygotsky, 1978). In addition, sociocultural theory and activity theory have expanded definitions of teaching and learning to emphasize their social, cultural, language, and political contexts (Leont'ev, 1981; Moll, 1990; Rogoff et al., 1996; Tharp & Gallimore, 1988; Vygotsky, 1978). In these theories, learning is an active, collaborative process of knowledge construction located in the interactions of teacher and student, in the social structures of classrooms, and in the larger institution of the school.

More than ever before, teaching or pedagogy means that teachers assist students continuously through interaction and activity in the ongoing social events of the classroom. For example, oral language development undergirds all exchanges that teachers have with their students, not only in lessons. Pedagogy also means that teachers learn about their students' homes and communities to understand how to draw on local funds of knowledge for academic learning. Today's pedagogy applies the concepts and findings of research that show promise for all students' achievement, such as communities of learners, language development, guided participation, emergent literacy, funds of knowledge, cultural compatibility and instructional conversation (Brown & Campione, 1994; Cobb, 1994; González et al., 1993; McLaughlin & Talbert, 1993; Purcell-Gates, 1995; Rogoff et al., 1996; Tharp & Gallimore, 1988; Vogt, Jordan, & Tharp, 1992). These pedagogical approaches, like other innovations and advances, are effective or ineffective depending on the presence of resources and supports for teachers' opportunities to learn, experiment, and reflect in programs and schools restructured for such activity (Darling-Hammond, 1997).

This pedagogical movement as it is demonstrated in many classrooms complements the efforts of standards-based reform. For example, Darling-Hammond (1997) advocates major changes that would "encourage the design of grouping structures that create extended, intensive teacher/student relationships." In fact, the principles for achieving such reforms are known and applied, having arisen from a mature research and theoretical literature, mature enough to serve as standards around which pedagogical reform can rally. The standards for pedagogy to be elucidated here are drawn from educational research and current practice that places teaching in the classroom itself; no longer must education depend on teaching to occur elsewhere. Thus, the promise of the new pedagogy is academic success for all students, because the school now undertakes to teach all that its students need to know.

What Are Standards?

The Current State of Pedagogical Standards

It is unquestionable that teachers must be highly knowledgable about their content area specialty, whether they teach a specific subject matter or all content areas in an elementary school classroom. However, effective teaching that produces academic achievement for all students requires more than content, child development, and motivational expertise (Darling-Hammond, 1997). What matters as much for teaching success is pedagogy.

In McLaughlin and Shepard's (1995) informative report describing current standards-based reform for improving education, they cite reformers' suggestions for pedagogy. One example states that linking "content standards and performance standards will

prove most useful for instructional guidance" (p. 22). In another, performance standards are praised for being more specific than content standards, thereby helping "to clarify and explain the kind of instruction and learning intended by the content standards" (p. 34). In such statements, pedagogy is communicated more through juxtapositioning and by inference than it is specified or guided.

In guidelines prepared for the certification and preparation of teachers of English to speakers of other languages, what teachers are actually to do with students is obscured by emphasis on what students are to know. For example, the teacher is advised to "progressively develop . . . comprehension of and ability to interact with English-speaking American society through mastery of communicative competence in English as it is used by the English-speaking population" by helping students gain mastery, awareness, and knowledge (Teachers of English to Speakers of Other Languages, 1996, p. 2). The dominance of what students need to know relegates pedagogy to a secondary or even tertiary position; it is diffused across standards statements. Diffusing pedagogy throughout the standards creates a discontinuous and potluck impression that misrepresents the potency of this integrating force for accomplishing all students' complex learning.

Standards that acknowledge pedagogy's central role, notably the National Science Education Standards, provide unambiguous guidance for teachers about how to teach, how to introduce a content topic, how to encourage students' questions and comments, how to involve students in content activities, and how to assess student progress continually (National Research Council, 1996). Useful statements about how mathematics teachers should perform are also embedded, though not highlighted, in the standards of the National Council of Teachers of Mathematics (1991).

Standards for Standards

Linder-Scholer (1996) notes that "standards" need not mean templates to copy or hurdles to jump, but that they can be understood in the original sense of the word—as banners guiding the way at the front of a procession. This notion of standards emphasizes their broad base and consensus nature, a consensus about ideals and principles that must be enacted in local contexts through local participation. Clearly, specific strategies and activities to accomplish standards will vary from one local situation to another. All approaches, however, share the common intention of aligning teaching practices with the broad statements of the standards.

Standards, in this vision of reform, provide general guidance for teachers, schools, teacher educators, and others interested in pedagogy and its effect on learning. These are not quick-fix recipes for teaching, but statements of ideals toward which teachers strive and that teachers can reach through reflection, practice, interaction, constructive feedback, and continuous learning about local conditions.

In the following sections, the process of transforming known principles of effective teaching practice into standards for pedagogy is presented through definitions, rationale, and examples. The purpose is to urge standards-based reform to enact its own recommendation that pedagogy occupy a central place reflecting its role in accomplishing all students' learning.

Standards for Pedagogy

In the broadest sense, this paper synthesizes what is known about effective teaching and learning for all students and expresses that knowledge as five standards for pedagogy, with indicators and examples of their functions in real classrooms. These, like other standards, have been derived through a consensus process following many years of research and development. Most of the research itself, specifically pointed toward developing, refining, unpacking and self-consciously testing the standards, has been conducted by the researchers affiliated (both formally and informally) with the Center for Research on Education, Diversity & Excellence (CREDE) and its predecessors, the National Center for Research on Cultural Diversity and Second Language Learning; the Kamehameha Early Education Program (KEEP); and KEEP's application to teacher education in the alternative program, Preservice Education for Teachers of Minorities (PETOM) at the University of Hawaii, Manoa, College of Education. The consensus process included an analysis of the literature on teaching and learning produced by researchers and program developers working with the full range of the nation's majority and minority students in K-16 classrooms. The standards were extracted from that literature as statements on which there is agreement about effective teaching across those widely dispersed and diverse populations. Because these general statements are based on the widest possible range of diversity, they have validity as universals, applicable to teaching across grades, subject matters, curricula, cultures, and language groups. They are not a finished list, nor is a completed understanding of their functions yet achieved.

As general statements, the standards do claim a high degree of consensus, however, and that consensus process has developed across more than the last decade. The process included the publication of successive versions and explications of the statements (Dalton & Stoddart, 1998; Dalton & Youpa, 1998; Hilberg, Doherty, Dalton, Youpa, & Tharp, 1998; Tharp, 1989, 1992, 1993, 1997; Tharp, Dalton, & Yamauchi, 1994). Simultaneously, researchers and practitioners working together conducted a national program of oral presentations and discussions in which criticism and exceptions to the standards statements were invited. These venues ranged from national satellite-broadcast call-in events to small conferences of special topic researchers and policy makers, and included presentations to practitioners in school districts across the country and focus groups of parents and teachers. In the course of the standards' development, student teachers, beginning teachers, and experienced teachers of mainstream, diverse, and at-risk students have successfully implemented them (Dalton, 1986; Dalton, Blaine, & Tharp, 1987; Dalton & Sison, 1994; Dalton & Stoddart, 1998;[1] Dalton & Youpa, 1998; Hilberg, 1998). A high degree of consistency exists between these five standards and those issued by other national standards groups to the extent that the others address pedagogy (e.g., the Professional Standards of the National Council of Teachers of Mathematics; the National Board for Professional Teaching Standards), increasing the confidence with which we can claim these standards as representing the clearest available national consensus.

Five Standards for Effective Pedagogy

The five standards for effective pedagogy, their indicators, and illustrative examples of each are presented in the following sections of this paper. The indicators guide preparation for implementing each standard, provide a classroom observation format, and encourage reflection on practice, individually or with peers. The standards and indicators are presented in list format in Appendix A.

Pedagogy Standards
Five Standards

JPA = Joint Productive Activity

LLD = Language and Literacy Development

MM = Making Meaning

CT = Cognitive Thinking

IC = Instructional Conversation

Standard I. Joint Productive Activity (JPA): Teacher and Students Producing Together
Facilitate learning through joint productive activity among teacher and students.

Standard II. Developing Language and Literacy Across the Curriculum (LLD)
Develop competence in the language and literacy of instruction across the curriculum.

Standard III. Making Meaning: Connecting School to Students' Lives
Connect teaching and curriculum with experiences and skills of students' home and community.

Standard IV. Teaching Complex Thinking (CT)
Challenge students toward cognitive complexity.

Standard V. Teaching Through Conversation (IC)
Engage students through dialogue, especially the Instructional Conversation.

Taken together, the pedagogy standards describe teaching that organizes productive student participation in a variety of activity settings to guide students' learning in meaningful ways. In the diagram, each of the star's arms represents a standard, and the star's body integrates them into an overall effective pedagogy. Each standard influences the others. For example, the Joint Productive Activity (JPA) standard influences classroom organization and task design, which in turn support the four other standards. An increase in the variety and richness of Joint Productive Activity, such as small groups, provides more Meaning Making (MM) opportunities, because smaller groups increase opportunities for teachers to talk with students to learn about their experiences in and out of school. JPA also makes Language and Literacy Development (LD) more likely, because students are willing to express themselves orally and in other

ways, such as drawing and writing, when they are working together with teachers. JPA makes students' Complex Thinking (CT) more likely, because a teacher who knows students through interaction and joint activity can individualize instructional levels more sensitively and can activate peer resources when there are alternatives to large group instructional settings. JPA makes Instructional Conversation (IC) more likely, too, because the teacher can lead a dialogue on academic topics with a selected group of students while the others participate independently in numerous joint productive activities.

Although the standards clearly function interdependently, novices are encouraged to apply them sequentially, beginning with Joint Productive Activity and Language and Literacy Development. Instructional Conversation is best deployed after gaining experience with the other four standards, particularly Language and Literacy Development. In K-12 teaching, classroom management and organization are key to effective implementation of the standards. These topics are treated briefly in this paper and are discussed extensively elsewhere (Dalton, Stoddart, & Tharp, 1997; Tharp, Estrada, Dalton, & Yamauchi, in press).

Standard I

Joint Productive Activity (JPA): Teacher and Students Producing Together

Facilitate learning through joint productive activity among teacher and students.

Indicators

The teacher:

1. designs instructional activities requiring student collaboration to accomplish a joint project.
2. matches the demands of the joint productive activity to the time available.
3. arranges classroom seating to accommodate students' individual and group needs to communicate and work jointly.
4. participates with students in joint productive activity.
5. organizes students in a variety of groupings, such as by friendship, mixed academic ability, language, project, or interests, to promote interaction.
6. plans with students how to work in groups and move from one activity to another, such as from large group introduction to small group activity, for clean-up, dismissal, and the like.
7. manages student and teacher access to materials and technology to facilitate joint productive activity.
8. monitors and supports student collaboration in positive ways.

Examples of Joint Productive Activity with identifying indicators follow.

1 6 7 8

TWO BASIC RULES: SHARE AND PRODUCE
First, Second, and Third Grade

In an urban magnet school in the Southwest serving low- and middle-income students (60% language minority), a teacher and her 25 first-, second-, and third-grade students managed effective and equitable joint productive (JPA) computer activity. According to the teacher, two classroom rules about computer use helped the students understand how working together could help them be independent, creative, and self-assessors.

Rule 1 required students to share and help each other with the computer. The teacher frequently modeled joint work with students on the computer and called the class's attention to students who were working together successfully.

Rule 2 required a product from students' activity at the computer. "Creative people are producers," said the teacher. Products and partners were often self-selected; regular requirements, such as writing class news, were rotated. (Chisholm, 1995-6, p. 167)

When experts and novices work together toward a common product or goal and have opportunities to converse about the activity (Moll, 1990; Tharp & Gallimore, 1988; Wertsch, 1985), learning is a likely outcome. Research on cooperative learning shows that students of color who participate cross-racially increase their academic achievement, motivation, self-esteem, and empathic development (August & Hakuta, 1997).

Teachers help students see everyday experience in more complex ways when students are invited to relate their home and community activities to learning topics. Activities such as cutting a watermelon to feed the largest number of children equally or figuring the cost of purchasing an accurate amount of lace trim for dance dresses can advance everyday problem solving to more complex levels. In JPA, the product is also important for its capacity to motivate student learning. An example from a Kentucky middle school is illustrative.

1 4 6

STUDENTS NO LONGER ASK MATH AND SCIENCE TEACHERS "WHEN ARE WE EVER GOING TO USE THIS STUFF?"
Middle School Grades

At a middle school in Kentucky, teachers said, "We wanted our students to understand the relevance of science and math to their world." The teachers have reformed teaching and learning in their classrooms through support from the National Alliance for Restructuring Education (NARE) and technology from Apple Computer. The teachers report shifting from "sage on the stage" teaching to guiding students to produce quality, curriculum-based products. "We planned for the students to conduct their own research, run experiments they had designed, and apply what they had learned to answer questions involving math and science in their world. We became our students' guides, proposing intriguing questions, showing them various forms of technology that could be used, and making sure that the curriculum was addressed. We also didn't want the technology itself to overpower the math and science content or to have students produce work that looked good, but had little real learning connected to it. When students use the tools of technology, their products look professional, like work that an adult would produce. This result is very motivating, and students who typically might not complete work will continue to revise and work until a quality product is achieved." (Schempp, 1996-7, p. 4)

The impact of the products of joint activity on learners' motivation and understanding is often observable. The following examples of JPA provide evidence of the impact for students, teachers, and schools.

WHAT ARE JOINT PRODUCTIVE ACTIVITIES (JPAs)?

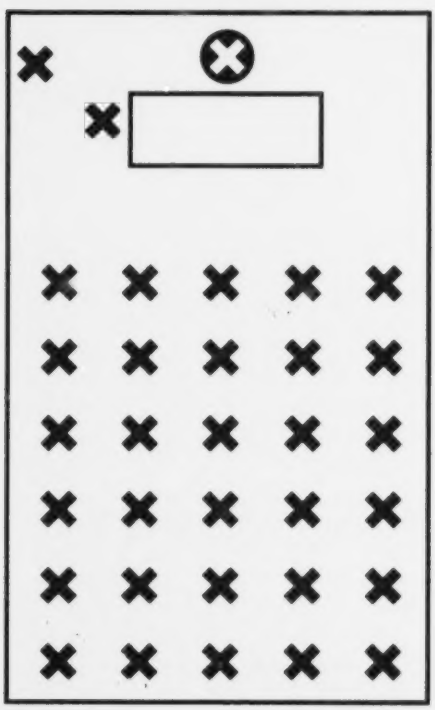
	JPAs ARE COLLABORATIVE	JPAs RESULT IN A TANGIBLE PRODUCT
1 5 7	Calloway County, Kentucky Middle School, uses computer spreadsheets and drawing programs to change teaching and learning. To look at human growth and development patterns, students measure each other using a conventional tape measure (Schempp, 1996/7).	Students' growth measures are entered onto a spreadsheet with attention to accuracy to generate patterns depicting their human outlines. The students e-mail their computer-generated patterns to other seventh grade students working on the same topic in another state. They print out their growth patterns to share with peers, comparing measurements and compiling measures from the entire class to produce a class spreadsheet pattern.
1 7	At Clear View Charter School in San Diego, fifth- and sixth-grade students studied wellness issues and communicable diseases. They used petri dishes to grow bacteria and run experiments such as coughing in the petri dishes and comparing the effects on bacteria growth of antiseptic soaps and non-antiseptic soaps. From their studies, they prepared interview questions for doctors and nurses at the nearby university medical school. The interview was set up between their classroom and the medical school, arranged using the university's fiber optics capacity.	The data the students collected and the information from the interview revealed antiseptic soap to be most effective in preventing bacteria growth. In response to the data, students decided to change their own hygiene habits. Following this change, they tracked the class's illness rate for the remainder of the year and found it plummeted (Hovenic, 1997).
1 4 5 7	The Olympia (WA) School District has a technology plan that involves students in assisting teachers. By using students rather than professional consultants to provide needed teacher support, teachers and students participate together to find resources to meet instructional goals.	Students plan and provide training and support for teachers in workshops. They also support other students. The district believes students are far more at ease than most adults with emerging technology and can discover and explain new technologies far more naturally. Fourth graders show teachers how to create home pages and Power Point presentations (Harper, 1997).
1 2 3 4 5 6 7 8	In a Zuni (New Mexico) middle school eighth-grade literacy class, the ongoing product of the class is a monthly school newspaper. Virtually every activity setting for the newspaper's production involves joint productive activity, because every column, advertising segment, editorial, and news story must be coordinated with other individuals or groups working on the same overarching organizing product, the newspaper. The teacher participates as a member of the work team. In this class, which looks and acts more like a newsroom than a schoolroom, the energy level is extraordinary (Tharp & Dalton, 1994).	The teacher participates in every task with the students, as needed, to insure the publication of the paper on time. Teacher and students interact in authentic ways, just as in a real newsroom: Arden: I need to type . . . Teacher: Yours is already typed! I typed it. I typed it because no one typed it! Jenna: Well, I wanna make changes. Rebecca: Well, you can make all the corrections on it, okay, but it was not happening, it was, just was not happening. The newspaper and the class are popular.

	JPAs ARE COLLABORATIVE	JPAs RESULT IN A TANGIBLE PRODUCT
1 5 7	A Grade 1-3 teacher in a magnet school in the southwest incorporated computers into the classroom to be used in pairs, triads, and larger groups. The students used software programs to work on self-selected and assigned projects requiring application, creativity, design, and problem solving.	Students produced a variety of products throughout the year, such as pictures, reports, slide shows, books, newsletters, stories, letters, poems, and greeting cards. The greeting cards included computer-generated Valentine's Day cards, which students sold to teachers and students in other classrooms (Chisholm, 1995-6, p. 157).
1 3 5	A Chicago elementary school featured a hands-on, cooperative approach in a classroom where students researched the composition of an ocean coral reef. Students worked together to discover and design reef features.	Students constructed a model ocean coral reef in the hallway outside their classroom where they had room to work together and display their research findings about coral reefs creatively (Murphy, 1997).

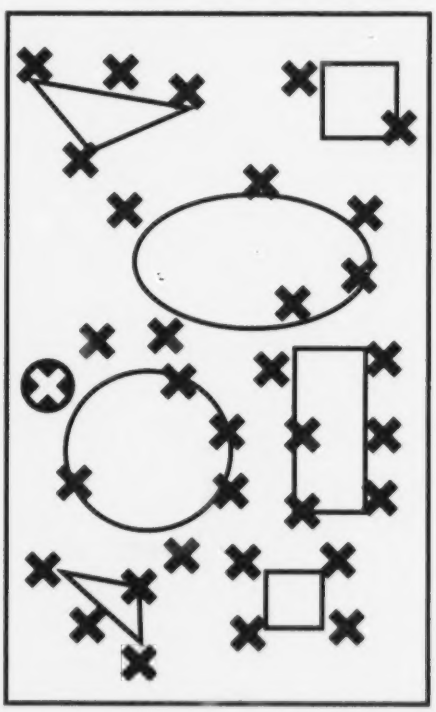
Yesterday's typical ideal school room was organized as a single activity setting as seen in Diagram 1. Like rows and columns in a cemetery, silent, passive students worked quietly and separately on identical tasks. The authoritarian teacher monitored them, judged them, and assigned more tasks.

Diagram One and Two

YESTERDAY'S CLASSROOMS



TODAY'S CLASSROOMS



Many of today's classrooms organize for the five standards with a variety of activity settings: cooperative, individual and group work, teams working with peers and with the teacher. Teachers reporting their experience in such classrooms describe how they arrange the classroom for logistical, hygiene, and other purposes, such as having simultaneous activities take place in separate areas of the classroom. For example, a triad might work on the computer while a small group listens to a story read by a peer, a third group finishes a collaborative story draft, a fourth group collects data on classroom science projects, and a fifth group constructs a bulletin board displaying a content area concept the class is studying. The teacher circulates among her students, observing their progress and providing assistance as needed.

1 3 4 5 7

ORGANIZING AN ELEMENTARY CLASSROOM FOR JOINT PRODUCTIVE ACTIVITY AND TECHNOLOGY

In the whole-group instructional area of the classroom, children sit at individual, movable tables. The chairs may be grouped in quads or pairs and arranged in a rectangle or horseshoe configuration, depending on the learning activities. During reading time, children may sit on the floor, at their desk, or on the couch in the reading nook. At the computer, children may rearrange seating by adding or removing chairs to work individually, in pairs, in larger groups, or with the teacher, depending on the task, students' computer skills, and student preference. Partners may be self-selected or teacher-selected (Chisholm, 1995-6).

1 3 7

ORGANIZING AN ELEMENTARY CLASSROOM FOR STUDENTS' COMPUTER USE AND JOINT PRODUCTIVE ACTIVITY

The classroom contains an Apple IIe and a Mac LCII computer, which are placed on two tables set in a reversed-L configuration near an exit door. These computers are primarily for student use. A dot-matrix printer also rests on the table nearest the door. The first computer sits beside a wall and behind a third table. This computer's color monitor is clearly visible to those students who stand or sit directly before the computer and to the teacher as she walks behind the computer. The monitor is essentially unobservable from other areas of the room. The second computer located at the bottom of the L-configuration is in a high traffic area, and its monitor is visible to anyone passing by or standing nearby. The teacher chose these locations for logistical reasons. One was less dust in the area, the other was proximity to other students, so children could readily seek computer help from classmates (Chisholm, 1996).

Even as powerful computer technology enters today's classrooms, its potential to advance learning depends on students' opportunity to employ that technology in ways that the classroom community cares about. Effective integration of classroom technology must include not only sharing, joint activities and interactions, but a variety of roles, from novice to expert, to be performed by both teachers and students. Such a model has promise to transform learners' views of themselves and the learning process.

Shifting classroom models from students working silently and alone to a community of interactive participants has implications for every aspect of classroom life. Many of today's classrooms have several activity settings operating concurrently, with the teacher rotating among small groups of students, working jointly with them, engaging them in Instructional Conversation, and assisting them in language development. Classrooms organized for JPA facilitate implementation of the other four standards

described below. Guidance in arranging classrooms for JPA can be found in Appendix B, "Guidelines for Organizing Today's Classroom Activity Settings."

An important aspect of this shift in classroom models is the redefinition of classroom management. Management in today's classroom involves building a sense of community to emphasize both social and academic needs (Evertson, Weeks, & Randolph, 1997). In complex classroom arrangements like today's, management that supports successful classroom functions may not be obvious to the observer. But orderly and meaningful learning occurs in these settings, because classroom organization and procedure are also Joint Productive Activities. In such a classroom community, adequate time for joint decision making about rules and problem solving is provided from the first moment of the school year. Teacher and students progress to complex classroom arrangements through joint planning, negotiation, and clear understandings about what will occur.

SCIPP, which stands for Simplify, Cooperate, Ignore, Promote, and Praise, is a classroom management rubric designed by teachers using the pedagogy standards to support community building practices in classrooms. When used systematically, SCIPP guidelines manage teachers' and students' participation in collaborative and positive ways.

4 6 8

SCIPP: LEARNING COMMUNITY MANAGEMENT

S=SIMPLIFY

- **Simplify early tasks to assure that all students succeed.**
- **Use familiar and everyday language that students understand to talk about classroom activities.**
- **Invite students to prepare and provide task directions, instructions, relevant examples, rationales, and so forth.**

C=COOPERATE

- **Ask students what to do: How can we build a community for teaching and learning together?**
- **Listen to students.**
- **Respond to students' views authentically.**
- **Give important community reponsibilities to students.**
- **Put students' suggestions and advice to immediate use.**

I=IGNORE

- **Overlook inappropriate student behavior.**
- **Attend (look, speak, act) to what is going right.**
- **Expect inappropriate participation to disappear if it is given no teacher or student attention.**
- **When necessary, give consequences that the community has previously agreed are appropriate.**

PP=PROMOTE & PRAISE

- **Seize every opportunity to promote and praise appropriate student participation.**
- **Applaud students' appropriate ways of participating in community.**
- **Praise appropriate participation immediately when it replaces inappropriate participation.**
- **Showcase what is going right.**
- **Promote and praise academic effort in full detail.**

Standard II

Developing Language and Literacy Across the Curriculum (LLD)

Develop competence in the language and literacy of instruction across the curriculum.

Indicators

The teacher:

1. listens to student talk about familiar topics such as home and community.
2. responds to students' talk and questions, making "in-flight" changes that directly relate to students' comments.
3. assists language development through modeling, eliciting, probing, restating, clarifying, questioning, and praising, as appropriate in purposeful conversation.
4. interacts with students in ways that respect students' preferences for speaking style, which may be different from the teacher's, such as wait-time, eye contact, turn-taking, spotlighting.
5. connects student language with literacy and content area knowledge through speaking, listening, reading, and writing activities.
6. encourages students to use content vocabulary to express their understanding.
7. provides frequent opportunities for students to interact with each other and with the teacher during instructional activities.
8. encourages students' use of first and second languages in instructional activities.

Examples with identifying indicators follow.

1 2 3 4

MODELING CONTENT VOCABULARY WITH SEVENTH-GRADE ENGLISH LANGUAGE LEARNERS

Teacher:	. . . if we measure Saturn and Jupiter, how can we tell which one's bigger and what did you say?
Adrianna:	You measure the diameter.
Teacher:	Uh-huh, uh-huh, you measure the diameter of which one?
Adrianna:	Of both.
Teacher:	Of both and then what did you do?
Adrianna:	You see which one's bigger than which one.
Teacher:	So you compared the diameters of the two?
Adrianna:	Yea.

Language proficiency—in listening, speaking, reading, and writing—is key to academic achievement. Teachers' interaction with every student is critical in a view of learning that assumes that participation in social contexts has an important influence on academic achievement. At the start of the school year, students' informal talk during participation in general activities produces information about their language proficiency, families, prior experiences in school, and participation in other activities. Implementing the language development standard means that teachers provide informal opportunities to learn about students while encouraging students to participate in the emerging community of the classroom. Based on what is known about the interconnections of language, thinking, values, and culture, interaction—particularly over Joint Productive Activity—supports students' academic achievement and affective development (Au, 1980; Cazden, 1986; Tharp, 1997; Vygotsky, 1978).

Whether in bilingual or monolingual programs, whether instruction is in English, Spanish, Navajo, Zuni, or Chinese, language and literacy development in the language(s) of instruction are the foundation for teaching and learning. The foundation is laid by creating interactive contexts where students can participate in language and literacy activities. Clearly, the Joint Productive Activity standard previously described complements the organization of classrooms for Language and Literacy Development. In such contexts, students participate in joint activities from kindergarten through high school to use academic language and create text on academic topics.

Purcell-Gates (1995) describes how language and literacy are social and cultural practices that can occur outside of school. This is different from the traditional view that children begin to read and write only at the onset of formal literacy instruction. As she explains, the role of print in children's everyday lives can help them build conceptual understandings about reading and writing. For children from literacy-rich environments, their experience of participation with print in their culture gives them implicit knowledge about the meaning of print. Those without a literacy-rich background lack implicit knowledge and thus need explicit instruction for literacy to develop.

In this view, the teacher's role is to involve students in literate activity to accomplish learning, such as in the biodegradability project described below. Such a rich activity demonstrates how "reading and writing are cultural practices, and direct instruction is required for those experiencing problems with them" (Purcell-Gates, 1997, p. 98). The implications for direct instruction are clear, that is, teachers provide specific support when needed in the activity to assist understanding.

1 3 5 7

KINDERGARTNERS STUDY BIODEGRADABILITY

A teacher described her science activity as follows: I put gravel in the bottom of a 10-gallon aquarium. Then my kindergartners threw in leaves we collected on a nature walk and some food items, such as apples. I made sure the apples were near the glass so we could watch them rot. The kids also "planted" a plastic bag and an aluminum can. They put potting soil on top and watered it regularly. We put it in a south window and they were so interested that they checked it often even during free play. They kept records of the degrading process by drawing pictures each time they observed the project. They labeled the items in the drawings which showed the process of change. We discussed the drawings and students shared the most important change that their drawing documented. This information was written down by the student or the teacher and pasted on the drawing. The students compiled their drawings in the order that they made them to make a book about the biodegrading process. After the project was completed, they placed the books in the classroom library to read with peers.

When teachers implement Language Development together with the Joint Productive Activity standard, they provide an organizing structure for students to learn language from peers and teacher, and they reorganize conceptualizations through compelling activity (Bruer, 1993). In JPA, teachers can generate conversation in students' everyday language about their joint activity, then bridge to academic language and use of content vocabulary for academic purposes. The chart below provides a useful framework to guide interaction between teachers and students to promote understanding and increase student language.

INCREASE TEACHER TALK TO:

- **Present information in known contexts.**
- **Model appropriate language and vocabulary.**
- **Provide visuals and other materials that display language.**
- **Use familiar language from students' funds of knowledge.**
- **Use sentence patterns and routines often.**
- **Adjust questioning to meet students' needs.**
- **Ask students to explain their reasoning.**
- **Invite students to paraphrase often.**
- **Simplify sentences and syntax.**
- **Play with words.**

The ways of using language that prevail in school discourse (such as ways of asking and answering questions, challenging claims, and using representations) are frequently unfamiliar to English language learners (ELLs) and other students placed at-risk of educational failure. For these students and others, teachers must draw on the real-life experiences of their students and arrange frequent opportunities for students to discuss and write about their funds of knowledge for peers and teacher.
Teachers know the language and vocabulary students will need to comprehend concepts in the content areas. They can use this knowledge to arrange activity and interaction that will develop students' academic language proficiency. Effective mathematics learning is based on the ability to "speak mathematics"; achievement across the curriculum is dependent on mastery of the languages of content areas.

2 3 6

SEVENTH-GRADE MATHEMATICS TEACHER ASKS ELLs: HOW DO YOU KNOW?

Teacher:	Right. Okay, so, which one was the diameter? Can you guys tell me which?
All:	The smallest ones.
Teacher:	How do you know it's the smallest one?
Daniel:	Because the diameter is always going to be smaller than the, the circumference.

Implementing the Language Development Standard means drawing on a variety of social contexts to emphasize the explicit connections between students' experience and language, literacy, and academic knowledge. Topics from TV, the Internet, and movies that students have an interest in discussing provide the hooks teachers can use to leverage lesson discussion to more complex levels.

5

CONVERSATION BRIDGING EXPERIENCE AND MATHEMATICS TOPICS

Teacher:	What does that (a picture of TV program Star Trek's starship, Enterprise) have to do with math?
Luis:	mmm, on the computers, the machines that they have on the Enterprise. Like they measure stuff.
Teacher:	They measure stuff? with their computers, okay. yea, so the sort of things?
Luis:	Planets.
Teacher:	Planets? how do you measure a planet?
Luis:	Mmmm . . .
Edgar:	You can't measure a planet.
Teacher:	You can't?

Edgar:	No.
Daniel:	Yea.
Teacher:	How can you?
Luis:	You can draw a circle.
Edgar:	You can't.
Teacher:	You can draw a circle? is that a way to measure a planet?
Luis:	Yea.
Teacher:	Explain to me what you mean by that.

Given the increasing diversity of America's classrooms, students' ways of talking may be unfamiliar to teachers. Regular opportunities must be provided for students and teachers to practice culturally based ways of interacting. It is desirable to integrate sociolinguistic practices that reflect students' preferences for talking with ongoing classroom activities to respect their traditions and draw from that context for learning. For example, in Philips's (1983) classroom ethnography, she compared classroom participation of reservation-reared Native American children and non-Native children. She found that Native American children participated eagerly and effectively when their required performance was less public, less teacher directed, and free of corrective feedback. When those conditions were invoked in the classroom, the children were capable of competent, self-directed performance.

Likewise, preferences of Hawaiian-American students include overlapping and simultaneous speech, reflecting their oral tradition of co-narration or "talk story." Teachers can adapt classroom participation to allow students' familiar forms of conversation, dropping unfamiliar forms such as hand raising. As Hawaiian students have "talk story," some African-American students use a form of everyday talk known as "signifying." Signifying, as ritual insult, highly values creative and figural expression in ways similar to authors' uses of literary devices, such as metaphorical language, irony, and satire, as in the example, "Yo mama so dumb she thought a quarterback was a refund" (Lee, 1995).

4 7

COURTESIES AND CONVENTIONS OF CONVERSATION VARY ACROSS COMMUNITIES

Hawaiian-American third-grade students co-narrate in the following conversation:

Teacher:	What shows signs? How might you know when your grandmother is getting older?
Noelani:	Her hair might get . . .
Kalani:	No, she gets, face, face . . .
Makua:	She gets gray hair.
Kalani:	Her face gets, gets wrinkled. And, uh, the way they talk, and they cannot hear so good.

When teachers and students have common understandings about ways to communicate, teachers can guide students to proficiency in academic discourse (Au, 1980). Students, especially secondary students, are trained to view questions or requests for elaborations as signals that their responses are incorrect. But students who participate in JPA and Language and Literacy Development activities evolve organizing structures for engaging new ideas, changing conceptions, and reorganizing schema (Bruer, 1993). Because English as a second language (ESL) studies reveal mutually supportive links among language development, academic achievement, and cognitive growth (Collier, 1995), language development is important at all levels—informal, problem-solving, and academic—and should characterize the entire school day.

1 2 3 4 5 6 7 8 SIXTH-GRADE TEACHER MODELS ENGLISH VOCABULARY

Georgia, a sixth-grade teacher, uses pictures to discuss an unfamiliar topic, European and American furniture styles, with her bilingual Native American students. The students are considering topics for reports they are to make. The teacher casually labels (in italics below) the furniture types while browsing through the pictures.

Sharlene:	I don't like that.
Georgia:	You don't like *contemporary* or you don't like, she doesn't like *old-fashioned* stuff and you like it and she just likes the new *modern*. Isn't that interesting? I think that's interesting. So what you need to do is look for pictures that show *romantic*, French-type . . . that show that. See, that's *romantic*, that's very *romantic*."
Erin:	I LIKE that!
Georgia:	Candlelight. This is *romantic*.
Erin:	This is gross.
Georgia:	This is contemporary. This kind, where a lot of chrome, a lot of laminate, a lot of glass. It's *modern*. See the chrome bookshelves, see the chrome . . . you're like me, you're like me, you're the *romantic*.

As the students use nonspecific language to react to the visual images, Georgia unrelentingly, but meaningfully, models English-language labels. Her style is warm and casual as she seizes every opportunity to model. In the following excerpt, Georgia's pedagogy is validated: The students use the terms (in italics).

Georgia:	Yeah, this is contemporary.
Erin:	All straight and stiff. What if we had a *contemporary* room?
Georgia:	It's almost. It's a mess, huh?
Sharlene:	That would make it *romantic*.
Erin:	Let's look at the last page. What's *modern*? Like this kind? Or this?

Enacting the Language Development standard regularly has the power to influence students to understand that talking in the classroom is about academic learning, that is, being included as a student. Language and literacy development are fostered through purposive conversation between teacher and students that leads to academic products in academic language (Berman et al., 1995; Tharp & Gallimore, 1989).

Standard III

Making Meaning (MM): Connecting School to Students' Lives

Connect teaching and curriculum with experiences and skills of students' home and community.

Indicators

The teacher:

1. begins with what students already know from home, community, and school.
2. designs instructional activities that are meaningful to students in terms of local community norms and knowledge.
3. learns about local norms and knowledge by talking to students, parents, and community members, and by reading pertinent documents.
4. assists students to connect and apply their learning to home and community.
5. plans jointly with students to design community-based learning activities.
6. provides opportunities for parents to participate in classroom instructional activities.
7. varies activities to include students' preferences, from collective and cooperative to individual and competitive.
8. varies styles of conversation and participation to include students' cultural preferences, such as co-narration, call-and-response, and choral, among others.

Examples of teachers using this standard with identifying indicators follow.

1 **CONNECTING CONTENT TO STUDENTS' LIVES**

About two years ago none (of the students) knew what a biscuit was . . . . So we made biscuits and I used that experience to teach measuring . . . . It's all estimation and you have your ingredients that you measure in the palm of your hand instead of in a measuring spoon. That's the way they see it at home (Eriacho, Gchachu, & Odell, 1991).

A wide range of social contexts and circumstances beyond classroom and school are reported to influence academic accomplishment for all students (August & Hakuta, 1997). For students placed at risk by language and culture, ethnographic studies find that their learning is highly situated within the contexts of the social environments in which they participate (August & Hakuta, 1997; Philips, 1983; Swisher & Deyhle, 1992). Certainly, multi-ethnic and multi-racial themes, activities, and materials have positive effects on the ethnic, racial, and empathic attitudes of students, especially if they are included in ongoing daily events of classrooms, but the reality of students' lives is anchored in contexts outside school (August & Hakuta, 1997; Moll, Amanti, Neff, & Gonzalez, 1992; Vogt, Jordan, & Tharp, 1992). The Making Meaning standard encourages teachers to use a variety of direct and indirect approaches to explore and draw on students' familiar and local contexts of experience.

The challenge for teachers to contextualize is to uncover and understand the sources of students' knowledge. When the sixth grade in the middle school in Zuni, NM, designed a unit on the delicious piñon nut, teachers used a traditional activity as a context for their students to think about familiar things in new ways.

1 2 3 4 7

MAKING SCHOOL COMMUNITY CONNECTIONS
PICKING PIÑON NUTS
Sixth Grade

The mathematics teacher came in (to the team planning meeting) and proposed a project with piñons. There is a bumper crop this year. He said, "I just figured that the piñons are here, and we can't ignore them since all the students are eating them all the time. Why not study them?" We all got excited and creative, and in a team meeting came up with the following interdisciplinary unit on "Discovery of the Community." We will take our students piñon picking at Pia Mesa Road. This activity will be integrated into our academic lesson plans in the following ways:

1) In mathematics class, students will figure out how many piñons an average sixth grader picks per hour. They will also weigh the piñons and practice metric conversion. Students will study percentages and learn how they are used in marketing, as they plan strategies for mark-ups and sales.
2) In social studies, general principles of economics will be covered to assist students in marketing strategies.
3) In science, students will learn about the piñon tree, agriculture, and the environment.
4) In language arts, students will discuss and write about this experience. They will design labels for the piñon packaging.
5) Family life is involved, in that this activity will stress cooperation, social skills, and community and family involvement.
6) Students will actually sell the piñons and figure out their costs and profit. Any profit generated will go into the sixth-grade fund (L. Yamauchi, field notes, 1992).

The piñon unit provided opportunities for teachers to work jointly to plan, teach, learn about the community and its traditions, and discuss their lessons. In numerous ways, the unit involved the contexts external to school where student learning is situated, such as cultural tradition, staple crop harvesting and preparation, and marketing a cash crop. Parents were included in the field trips and other related activities. For the students, learning was collaborative, hands-on, and supported by the community. From the beginning, the tasks of the unit required considerable group cooperation, interdependence, and student choice for how to participate, which challenged teachers to grant independence and students to accept responsibility. Teachers' joint planning for cooperative, independent, and structured activities assured success for all students at some level and increased their understanding of the concepts covered.

Research shows that many students have stronger learning styles for visual, perceptual, and spatial information than for verbal presentations. The activity of the piñon unit provided vivid moments for teachers to move or shift students' informal understandings to more abstract levels (Preston, 1991). The variety of activity and interaction in the unit helped students map their informal understandings of how their world works onto the formal formulas, equations, abstract systems, and theories presented in classroom content instruction (Bruer, 1993). Educational research recommends that teachers avoid de-contextualizing instruction. Contextualized instruction uses compelling problems that convey meaning and wholeness in verbal and non-verbal forms for those relying on mental processing in images rather than word associations as stimuli for conceptual change (Bruer, 1993; Preston, 1991; Swisher & Deyhle, 1992).

6 Informing Parents

One teacher who participated in planning and teaching the piñon unit described it at one of the parent and teacher focus groups at the school: "It was pretty neat to see how the kids weighed the piñons and figured out the cost of each bag. . . . All of the activities were carried out in the different content classes. The cleaning, roasting, and salting went on in home life and the measuring, bagging, and pricing was done in math and science. The students dialogued about it in English class and wrote stories about piñons. This dialogue or instructional conversation went on with every activity they did. We try to make ourselves feel good saying, 'well, the quality is there.' This is one way that we think is much richer than giving students worksheets to do."

It is important for teachers to be informed about what goes on in the lives of their students, particularly those circumstances that may differ from what is common in the dominant culture or in that of the teacher. For example, the pattern of parent-child support and assistance may be different in families where sibling caretaking is characteristic. For immigrants and ELLs, significant differences between the children's and parents' education and English language skills change the patterns of communication from what teachers might expect. Therefore, teachers may look for alternatives to established practice when planning outreach to parents and or when making accommodations in instructional approaches for students (Puchner & Hardman, 1996, p. 3).

In high school, curriculum that is organized around compelling practical problems provides opportunities for teachers and adolescent students to design activities jointly that have meaning, personally or in the larger context of group, class, school, or community. A high school service learning teacher, Edward, uses such an approach, one-to-one, to encourage a student to speak and write the language of instruction and to participate in problem solving.

5 COLLABORATING WITH A STUDENT FOR A COMMUNITY PROJECT

The following dialogue is about a community painting project requiring paint donations. The teacher, Edward, talks with his student about getting donations. The student says, "If they won't afford it, we'll just do the bridge." Edward reformulates his question to guide the student to think in a new way about what to do.

Edward:	OK. If they say "We cannot afford paint," what are you going to do from there? If they, if they don't . . .
Arden:	If they won't afford it, they won't afford it. We'll just do the bridge.
Edward:	OK, but what if they say that, "we would . . . we really like that idea . . . we would really like to have your help? Can you help us, and I'm sorry we don't have any paint." Can you get the paint somewhere? Or if they ask you to get paint somewhere?
Arden:	Ummm, make a, make a note or something, see if the stores in Gallup can . . .
Edward:	OK, write a letter soliciting paint and direct it to what? I mentioned Walmart earlier. What stores might have a surplus of paint?
Arden:	Coast to Coast.
Edward:	OK, where is Coast to Coast, is it in Gallup?
Arden:	Yeah. It's that yellow front door . . .

As described in the previous section, the Language Development standard underpins students' academic achievement and also their affective development based on what is known about the interconnections of language, thinking, values, and culture (Au, 1980; Cazden, 1986; Tharp, 1997; Vygotsky, 1978). In a view of learning that assumes that participation in social contexts has an important influence on academic accomplishment, teachers assure that students are included and that their interaction styles are respected through a process of negotiation for the way classroom participants will talk and the topics they will discuss. This is critical for ELLs, because culture and language differences in the classroom are subject to misunderstanding by teachers, thus affecting their interpretations of students' prior knowledge, capacity for learning, and willingness to participate.

Teachers' and students' negotiations about participation structures are described by Cazden (1986) as incorporating participants' rights and obligations, and whose rules of engagement have been mutually constructed through the social interaction itself. The ways of using language in school discourse (such as ways of asking and answering questions, challenging claims, and using representations) are frequently unfamiliar to ELLs and other at-risk students. Similarly, students' ways of talking may be unfamiliar to teachers. Regular opportunities must be provided for students and teachers to practice and share their own culturally based ways of talking. These ways may include use of overlapping and simultaneous speech, teasing, signifying, and sounding, among others.

8 **INCLUDING AND RESPECTING DIFFERENT PARTICIPATION STRUCTURES**

Early Elementary Zuni Students' Social Teasing and Humor

The reading program is literature based in Grades K-1. When notes come from the office for young students, their teachers give them a chance to read it themselves. Sometimes they choose to do so aloud, reading, for example, "Walk to your grandmother's house after school." Other students will tease them in friendly ways by chiming in, "Don't pick any flowers. Don't break any rules," which are direct quotes from their Little Red Riding Hood story. This teasing is characteristic of Zuni people, who are highly socially sensitive. Much social conformity is assured in the Pueblo through veiled criticism in social teasing and gossip (Eriacho, Gchachu, & Jaramillo, 1991; Ostler, 1992).

Students' understanding builds as much on what they bring to learning in the classroom as it does from what they will learn. The meaning making standard urges teachers to seek out and include the contexts of students' situated learning to imbue instruction with real-world value from students' and local communities' points of view (National Council of Teachers of Mathematics, 1991). Students will struggle with unfamiliar language and abstract notions about highly integrated theories in science, math, and other content areas when they are motivated by interesting activities valued by them and their families. Osborne (1989), in his study of Native American parents in Zuni, reports that they want their children to survive and prosper in the dominant U.S. society as well as in their own community. Such findings suggest a growing agenda for the school, one that urges compatibility and shared understanding about the meanings of school, community, and culture.

Standard IV

Teaching Complex Thinking (CT)

Challenge students toward cognitive complexity.

Indicators

The teacher:

1. assures that students, for each instructional topic, see the whole picture as the basis for understanding the parts.
2. presents challenging standards for student performance.
3. designs instructional tasks that advance student understanding to more complex levels.
4. assists students to accomplish more complex understanding by relating to their real-life experience.
5. gives clear, direct feedback about how student performance compares with the challenging standards.

Examples of teachers using this standard with identifying indicators follow.

2 3

HIGH SCHOOL PRINCIPAL CALLS FOR PEDAGOGY TO CHALLENGE THINKING

In the past, young people were expected to memorize facts. If students in a geography class could name the capital of New York and the rivers that border Missouri, schools felt they had done a good job. But times have changed, and it's not enough just to know facts and figures. We need to teach people how to interpret data and solve problems. And I'm not just referring to the whiz kids in the class, the ones who will go to Harvard. Every child can be taught to think, and our job is to do just that. Even when you're teaching Jack and the Beanstalk to very small children, you can ask them to exercise their minds: Was it right for Jack to steal the goose? Why or why not? And you can ask the same kinds of questions with twelfth graders - only now you're talking about Stephen Crane or Shakespeare (Finn, 1997, p. 4).

1 3 4 5

TEACHING COMPLEX THINKING

A Vermont teacher begins her cultural geography unit by asking students first to describe their family culture, then, working in groups, their school culture. The students choose language and symbols that distinguish each type of culture. They then identify cultural expectations for boys and girls as reflected in newspaper cartoons and television shows from the 1950s and 1990s. Conversation about the contrasts of shows from the two decades helps students to see that current depictions of gender roles do not reflect the way boys and girls have to be. Finally, students compare these depictions with real people to get feedback about how popular culture influences roles and actions (Rutledge, 1997).

Contemporary school reform is likely to emphasize complex thinking as an instructional goal, but for many, at-risk students are considered to be exceptions. Standard IV reflects the clear research evidence that the teaching of complex thinking, by involving students in challenging tasks, is a universal principle for effective instruction. This emphasis shifts the goals of instruction from assuring that students have command of facts and basic skills to complex understandings that support practical problem solving in content domains. In mathematics, for example, because of teachers' assumptions that basic skills and proficient English must be acquired before problem solving or

comprehension can occur, instruction for minority students is often limited to skill drill exercises lacking context and problem-solving focus (Secada, 1991). In reading and other content areas, there are reports that language minority students' performance indicates that they are denied needed instruction. For instance, Spanish-speaking language minority students do not use the same types nor as many problem-solving strategies as other higher-achieving Latino students (Padron, 1992). The complex thinking standard describes pedagogy to assist complex cognitive change for all students. Such pedagogy draws on classroom social contexts and cultural practices, such as peer and teacher interactions and social organization, to help students build their understandings (Brown et al. 1996).

1

SEVENTH- & EIGHTH-GRADE SURVEY RESEARCHERS

In a math project emphasizing assessment methods, students were challenged to do survey research. The teacher read aloud a news story about a 10-year-old who surveyed her classmates about the amount of their allowances. The survey showed that girls received less than boys even when they did more chores. The students developed, administered, and reported on a survey of their own classmates to see whether such discrepancies existed. This project provided students with experience and data for applying their math skills and critical perspectives. Students are motivated to learn skills that will help them see through and into their world. In fact, the students found that girls in their class were also paid less than boys (Rutledge, 1997, p. 72).

Challenging students in ways that stimulate cognitive change means encouraging them to review and question their own and others' beliefs and rationales. Activities for engaging dialogue about problem solving provide an organizing structure for students to construct new understandings. Dramatic problems with real-life meaning can help students at any level evaluate, revise, and reoganize their conceptual organizations (Bruer, 1993). The object of problem solving is not to conclude with a correct answer, but to expand discussion and promote more complex thinking on the topic.

2 3

LITTLE THINGS WEIGH A LOT

For children who believe small objects, like a grain of rice, weigh nothing, it is an amazing experience to see that adding grains of rice one at a time to one side of a balance scale eventually tips the scale. If each of the grains alone weighs nothing, how can this happen (Bruer, 1993, p. 3)?

3 4

A HIGH SCHOOL WRITING CENTER

When teachers come to the Writing Center they are encouraged to make writing an integral part of teaching. A science teacher took his earth science class to the Writing Center for a unit on rocks. To demonstrate more complex understandings in their writing about rocks, students classified different types of rocks, made graphic representations of their findings, and then wrote descriptions of each type of rock. By having students collect, sort, and analyze the data, they wrote in organized ways about rocks (Rasmussen, 1997, p. 7).

Teachers challenge students to more complex levels by providing feedback about how their performance compares to the standard. This means that all students must receive not only high standards, but guidance and corrective feedback. For many academic competencies, success means mastering appropriate cultural practices. "Reading and writing are cultural practices, and direct instruction is required for those experiencing

problems with them. It is unfair and unethical to withhold insider information until children or adults 'figure it out for themselves,' as if they were insiders all along" (Purcell-Gates, 1995, p. 98). High standards and clear feedback are required to provide these "insider" skills.

5 **PROVIDING STUDENTS WITH FEEDBACK ABOUT THEIR WORK**

PEERS
Use double entry journals where students pose questions about class assignments that are answered and discussed by a number of students.

SELF
Teachers and students negotiate standards for classroom performance. These are posted, discussed, and revised as expectations for products and performance increase over time. Students use the standards to assess the quality of their work and their peers' work.

PARENTAL
Parents' reaction to their children's work is requested. Parental feedback for homework and classroom products is helpful for assessing students' progress toward standards. (Duran, Escobar, & Wakin, 1996)

Good performance of the Complex Thinking standard draws heavily on the Joint Productive Activity, Language and Literacy Development, and Making Meaning standards to present students with compelling problems to solve and interactive activities for organizing new constructions of knowledge. Traditional prescriptions for students placed at risk were to teach low-level, basic skills through many repetitive activities. Now we understand that higher-level thinking can be developed only when it is expected, required, assisted, and evaluated for every student. Basic skills alone are insufficient.

1 2 3 4 5

THE BILINGUAL INTEGRATED CURRICULUM PROJECT (BICOMP) IN CALIFORNIA ELEMENTARY PUBLIC SCHOOLS

In an elementary school in a traditional Russian neighborhood, predominantly Russian students decided to create a native plant area with a pond, bridge, and large rocks. They role-played professions of gardener, researcher, and accountant and called on parents and professionals for help. After planting in the spring, they prepared a portfolio including videos, writing samples, and photographs showing what they learned about the environment while they designed the natural landscape. Their portfolio was a prize winner in a contest on the environment (Lorenzen, 1996, p. 4).

Fifth graders, predominantly ELLs, followed up their work in gardening with laboratory analysis using microscopes and lenses to scrutinize insects they collected. They classified forms of life by filling in taxonomic charts. They compared their charts to those of experts to match their conceptualizations with those of experts. For each category, they recorded what they saw in the garden. Their study of invertebrates included the life cycle and morphology of insects. The teacher also used the taxonomic charts to teach vocabulary, prefixes, suffixes, roots, and other vocabulary skills (Lorenzen, 1996, p. 6).

Today, we know that all students need to be challenged to stretch, to learn language and content, and to think in complex ways beyond their current capacities. In the same way, teachers who practice the pedagogy standards amplify their own capacities to understand their students' theories and concepts. This enables them to to assist the more complex thinking that students need in today's social and cultural contexts. Teachers who teach for understanding know that this approach takes more time, and warrants more time, than cursory coverage designed for memorization of facts. For example, Bruer (1993) describes the successful pedagogy of a high school physics teacher who spends over a week developing Newton's laws in contrast to the one or two days most traditional courses give to the topic.

Standard V

Teaching Through Conversation

Engage students through dialogue, especially the Instructional Conversation (IC).

Indicators

The teacher:

- 1 arranges the classroom to accommodate conversation between the teacher and a small group of students on a regular and frequent schedule.
- 2 has a clear academic goal that guides conversation with students.
- 3 ensures that student talk occurs at higher rates than teacher talk.
- 4 guides conversation to include students' views, judgments, and rationales, using text evidence and other substantive support.
- 4 ensures that all students are included in the conversation according to their preferences.
- 5 listens carefully to assess levels of students' understanding.
- 6 assists students' learning throughout the conversation by questioning, restating, praising, encouraging, and so forth.
- 7 guides the students to prepare a product that indicates the Instructional Conversation's goal was achieved.

Examples of teachers using this standard with identifying indicators follow.

2 8

GETTING BEYOND PI AS 3.14159

In an Instructional Conversation about mathematics, five seventh-grade Spanish-language minority students with their teacher are cutting paper circles to use in their conversation. The students have little experience in conversation about academic topics, spending most of their class time doing worksheets. The teacher and students fold their circles in ways to indicate the center of the circle, the diameter, circumference, and a circle chord. In the English conversation about the folded circles, the teacher provides many opportunities for each student to use concept labels. They use strings to measure the circles' circumference and diameter, comparing them often. The teacher's instructional goal is to ensure competence with these concepts in English. By the end of the lesson, students are using the terms circumference and diameter at high rates. The teacher challenges them to see the relationship of diameter and circumference through the lengths of the strings they used to measure. She guides students to talk about how the strings fit together (Dalton & Sison, 1995).

The most productive instructional practice is characterized by interdisciplinary curriculum and complex problem solving that encourages students' purposeful and authentic use of language in life-like situations (Allington, 1990; Chamot, 1992; Means & Knapp, 1991). Yet teachers talk at two times the rate of students, and more than half of students' interactions consist of listening or nonverbal gestures (Ramirez, 1991). Studies examining students striving to learn both everyday conversation and academic language of content areas in English indicate that academic gain (content language, concepts, and vocabulary) requires considerably more time to develop than does everyday language proficiency (Chamot, 1992; Collier, 1995). Typically, classrooms provide infrequent occasions for students to participate in meaningful communication

about substantive topics with peers and experts. This effectively postpones mastery of languages, of conversational conventions, and of academic content (Au, 1980; Erickson & Mohatt, 1982; Rosebery, Warren, & Conant, 1992). By middle school, such restricted opportunities result in language minority students' limited academic success and low self-confidence in the ability to learn (Padron, 1992).

Instructional Conversation (IC) is teaching through conversation to guide students to construct more complex understandings of a topic, text, problem, or other activity. IC takes advantage of conversation's appeal for students when topics are interesting, and participation is comfortable and inclusive. Ordinarily, IC takes place in small groups, though a teacher may have Instructional Conversations with larger groups or individuals. For example, teachers may work on a unit or thematic topic with the whole class, followed by small group ICs that focus on researching and analyzing selected aspects of the topic.

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INSTRUCTIONAL CONVERSATION (IC) FOR ELLs

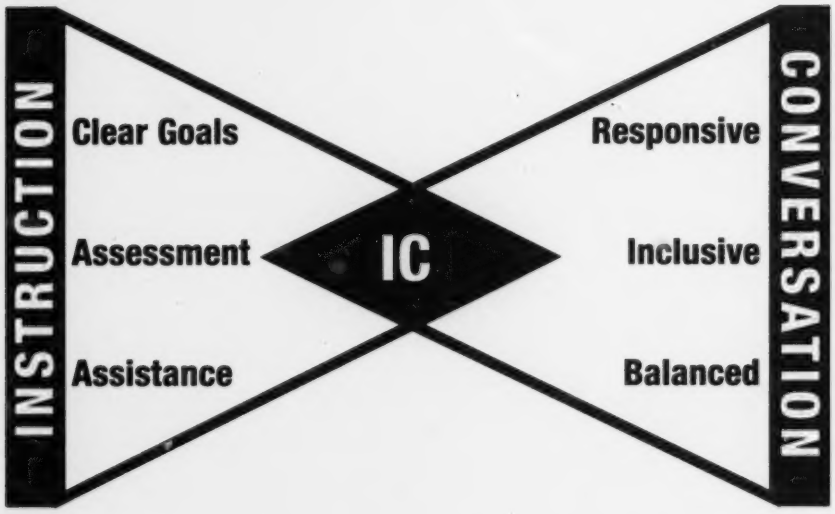
Haitian students learn to listen selectively in a seventh-grade beginning English language study class. In a "Welcome to School" unit emphasizing school vocabulary, reading a school map, and listening to school announcements, the teacher converses with students about a learning strategy called Listen Selectively, to help students plan their own learning. Using students' home language, she asks them how they learn and how they can learn better. They discuss action steps for achieving their learning goals. The teacher guides students to connect their action steps with what it means to listen selectively. They use a chart with important features of selective listening, such as attending to key words and phrases, to words or themes that repeat, or to words that give clues, such as first, finally, for example, and so forth. Students listen to the teacher read the school announcements to fill out the chart for the information they need. After discussing the chart, they follow it for the rest of the school day. (Rosebery, Warren, & Conant, 1992)

Instructional Conversation: An Oxymoron?

Thoughtful teachers have noted that "instruction" and "conversation" seem contradictory. But that is only because Instructional Conversation is too rare, and many have never seen a good example. It is possible to fulfill the standards for good conversation and good instruction simultaneously. It only requires understanding how they work together. The diagram on page 28 outlines the basic features of each.

When instruction has a clear goal, conducting it through conversation brings many advantages to students — a variety of participation formats and a (perhaps new) experience of being included. The format allows students to negotiate with teacher and peers to meet their social and academic needs. Advantages to the teacher include the opportunity to explore students' worlds of experience and knowledge in responsive ways. In IC, teachers combine ordinary conversation's responsive and inclusive features with assessment and assistance to motivate students' interaction toward an instructional goal.

Elements of Instructional Conversation



Typically, IC encourages student participation, but the teacher's clear instructional goal guides questions and responses to student talk. Teachers report making many on-the-spot decisions to change their questions, comments, or directions during IC to be as responsive as possible to students' talk. These conversation methods encourage teachers to reduce the amount of their own talk to achieve balanced participation.

IC's BALANCED PARTICIPATION

TEACHER TALK

- occurs less than total student talk.
- sets up opportunities for students' talk.
- has a topic focus.
- is responsive to students' talk and language proficiency, scaffolding the discussion when needed.
- models proper forms (syntax and grammar) of the language of instruction.
- elicits students' language on the topic through probes about reasoning and feelings.

STUDENT TALK

- occurs more than teacher talk.
- is every students' product.
- addresses the topic.
- uses own preferred style of talking such as co-narration, simultaneous, choral, or overlapping speech.
- uses proper forms of the language of instruction in response to models.
- uses content lexicon and concepts in response to models, probes, and the flow of conversation.

GETTING STARTED WITH IC

A teacher begins IC by simply asking students to talk about a selected activity, text, or experience from their point of view, that is, based on their knowledge from home, community, or school. The teacher encourages every student to talk specifically about personal and school experience that relates to the text and to the concepts the teacher plans to develop. Students are encouraged to participate in the IC using language forms and styles that are comfortable for them. Those forms and styles vary enormously; after all, many cultures have very different styles for how people talk with each other, and for how children talk with adults. By accepting students' preferred participation formats, teachers can elicit more student speech. That gives teachers more opportunities to promote precise and complex student language expression. Precise and complex thought is developed simultaneously.

Here are some of the varied ways in which students can participate in instructional conversation:

STUDENT PARTICIPATION FORMATS IN INSTRUCTIONAL CONVERSATION

- Students bid to answer.
- Students respond chorally.
- Students speak simultaneously.
- Students are called non-routinely.
- Students co-narrate.
- Students take turns.
- Students use overlapping speech.
- Students self-select.

SELECTING AN INSTRUCTIONAL GOAL

IC requires a clear instructional goal and a plan for assistance and assessment that guides students to the goal. If students have little common knowledge on a selected topic, a teacher will provide appropriate direct or indirect experience in the form of hands-on activities, field trips, or complex real-world problems, or through resource books, media, or other sources. Such an experience provides all participants with a shared notion of the intended IC topic, the basis for initiating IC conversation. While any good conversation requires some latitude and drift in the topic, the teacher's leadership is used to continue to focus on the topic goal. While the goal remains firm, the route to the goal is responsive to students' participation and developing understanding.

ASSESSING STUDENTS IN IC

When students share their experience and prior knowledge, they provide samples of language, which teachers use to assess their oral language proficiency. From the start, IC establishes a uniquely meaningful context for conducting authentic assessment of students' language proficiency. When the instructional conversation has developed and all students are included, teachers again assess students to ascertain what new understandings students have constructed. The teacher uses this information, on the spot, to decide how to develop the IC's content and length to attain the instructional goal. Assessment information also guides the design of follow-up tasks, other ICs, and the teacher's reflection on the success of this IC for students' academic achievement.

ASSISTING STUDENTS IN IC

Instructional conversation provides unique opportunities for the teacher to provide needed, responsive assistance. For example, teachers can assist students to understand narratives as expressions of human ideals and dilemmas. When teacher/student dialogue builds from individual experience to text analysis, students can comprehend the text's complex meanings. When IC is focused on subject matter, teachers intend for students to develop an understanding of content concepts and content lexicon and to develop the ability to apply them in conversation about problem solving or studying a

research question. As students are drawn into instructional conversation, teachers respond to individuals' learning needs by sheltering (i.e., simplifying) their language, by active questioning, and by modeling speech and thought.

Teachers' participation in instructional conversation can be guided by remembering the "three checks." These checks provide good discipline for teachers' participation, because they allow teachers to guide IC without dominating it. The teacher's IC script consists mostly of these checks, which can be in the form of questions or in the form of statements to which students respond. The three checks are as follows:

- **Clarification**: Teachers assure students' understanding (e.g., *Are we clear?*).
- **Validation**: Teachers provide opportunities for students to explain their reasoning (e.g., *How do you know?*).
- **Confirmation**: Teachers encourage students to negotiate with each other about what meaning to construct from the text (e.g., *Do we agree?*).

ENACTING IC

In the following IC, Janet draws her third-grade students into conversation about their experience with grandparents and the aging process. The IC prepares students to understand theme, characters, and events in a story they will read together. Janet's IC goals appear in the progress of the dialogue as she questions to assess students' experience with elderly people and assists them to think more about aging. She listens carefully to students' overlapping speech, is responsive to comments that advance her instructional goal, and invites and encourages participation to improve balance of talk without interrupting the flow. She uses the checks listed above, questioning the meaning of students' choral response ("Good") and often restating what students say to find out if they understand and agree as in, "So even though he's 86, why don't you think of him as an elderly man?"

The IC excerpt progresses from considerations of the physical signs of aging to a particular grandfather's activity and its meaning for his quality of life. It begins as Janet is writing on a "semantic web" diagram, their joint product in this activity, which provides a record of their talk and thought and a visual display for vocabulary.

1 2 3 4 5 6 7

Third-Grade IC

Janet=teacher SS=several students MS=male student FS=female student

Janet:	How do you feel about your grandmother?
SS:	Good.
Janet:	What do you mean, "good"?
MS in blue:	'Cause of the practice. She keeps on helping me and she says the more you practice, you're gonna get a hundred percent, so...
MS in brown:	I like my grandpa because my grandpa's...
Janet:	No, how do you feel about your grandmother?
??MS in red:	Good, because she was born my mother, my mother was born me.
MS in blue:	She helps me.
Janet:	OK, so I hear you saying that you feel good about her because she seems to assist you with things?
MS in blue:	Yeah.
Janet:	Any other reason you feel good about your grandmother?
MS in blue:	Uh, she cooks dinner for us, uh, she always buys, she always brings money on us, buy our clothes...
SS:	Yeah.
Janet:	Umm, so she gives you presents and things?
MS in blue:	Yeah, yeah. She buys all our presents.
MS in brown:	'Cause she never sees you for a long time.
MS in blue:	She lives with us!
Janet:	Could you describe your grandmother to me?
MS in blue:	Curly hair...
MS in red:	Uh! I've never seen my grandmother...
MS in brown:	Curly hair, black...
MS in blue:	Hawaiian...and, uh, uh, she wear, uh, shorts, uh...
MS in brown:	She wears a cap(?).
MS in blue:	...she wears shirts...
MS in red:	I dunno, I haven't seen her.
Janet:	You've never seen your grandmother, John?
MS in red:	Only when I was small.
Janet:	You don't remember anything about her?
MS in red:	No.
MS in brown:	What about your grandpa?
FS in blue:	She changed, maybe.
Janet:	Why might she change, Noelani, from when he knew her when he was a little kid till now?
FS in pink:	Getting, I know!
MS in brown:	She's old.
FS in pink:	Him? (Gestures toward student)
Janet:	Ahh. So your grandmother is old...
FS in pink:	And so is he.
Janet:	...and over time, the grandmother would get...
SS:	Older.
Janet:	What shows signs? How might you know when your grandmother is getting older?
FS in pink:	Her hair might get...
MS in blue:	No, she gets, face, face...
MS in brown:	She gets grey hair.
MS in blue:	Her face gets, gets wrinkled. And, uh, the way they talk, and they cannot hear so good.
MS in brown:	They get (unintelligible, kids laugh).

Janet:	So you see some physical changes in them, like their hair greying, and their, their....
MS in blue:	No, not my grandpa John. He always goes, he always goes to Las Vegas.
Janet:	So, your grandfather's pretty active, huh? He doesn't show it...
MS in blue:	He always brings silver dollars, 'here goes some, yeah, yeah, take 'em...' (Gestures like he is throwing money down.)
Janet:	So, does your grandfather seem old to you?
MS in red:	No.
MS in blue:	No, um, he's 86, but he thinks...
Janet:	So even though he's 86, why don't you think of him as an elderly man?
MS in blue:	'Cause he's active.
MS in brown:	He acts young.
Janet:	What do you do to act young?
FS in pink:	He's active.
Janet:	Ahh. He does lots of things and...
MS in blue:	He, uh, he smokes a pipe.
FS in pink:	And he does things that old people don't usually do.
Janet:	What might keep an older person healthy and active?
SS:	He drinks juice. Food! Food!
MS in brown:	Live happily and...
MS in blue:	Yeah, anytime he goes, pour a glass of milk, I say.....He goes, anytime I go to his house, he always goes, pour a milk, and I say, can I have juice, and he says, uh, no, that's the only thing I have.
Janet:	OK, and you also said something, what did he say his grandfather does?
MS in red:	Smoke pipes.
Janet:	No, about, visiting, where does he go sometimes?
SS:	He goes to Las Vegas.
Janet:	Why do you think he does that?
MS in blue:	Play poker.
MS in red:	He gets money to travel.
MS in brown:	He's old. And he likes to play.
Janet:	Alright. So that's kind of like his what?
MS in blue:	Hobby.

Summary

American education is learning from its considerable successes and egregious failures to build "bridges between students' diverse abilities, language backgrounds, and experiences and common curriculum goals" that accomplish "academic success for a greater range of students" (Darling-Hammond, 1997, p. 198). Insights from classrooms serving students at-risk must be joined with the traditional mainstream focus to provide the best lens for viewing and meeting the nation's challenge. These five pedagogy standards offer guidance for teaching that greatly expands teacher and student dialogue about joint activity to produce complex learning in the content areas. In classrooms where teachers practice these standards, even more than academic success can be present: The standards provide opportunities for every student to participate, to receive close teacher attention and interaction, and to live in a classroom where their experiences, ways of speaking, and cultures are respected and included. Students are expected to learn, they expect it of themselves, and, most importantly, teachers can assist them to do it by using the standards for pedagogy.

As banners, the pedagogy standards convey ideals, not templates. This vision of standards reflects their broad base and consensual nature. They do not imply standardization, especially as they relate to social and cultural practices in classrooms. Enactment of the standards must fit local circumstances and respect unique features of individuals, schools, and communities (Gallimore & Goldenberg, 1996). Standard III (Making Meaning: Connecting School to Students' Lives) explicity requires localization, and thus non-standardization is a fundamental quality of the standards themselves. Students today enter schools with ethnicities, languages, cultures, and individual needs more disparate than ever before. Community localization and individual responsiveness to these variations are critical to assuring all students' participation and academic success.

The call for improved student achievement for a greater range of students relies on teachers' standards-based competence for accomplishing the goal (Darling-Hammond, 1997). In fact, Goals 2000 and the Improving America's Schools Act are explicit that all students' academic success requires that intending and practicing teachers, regardless of background, be prepared to meet the needs of America's diverse student body (August & Hakuta, 1996; Milk, 1990). Pedagogy is key to teacher preparation that assures quality teaching that accomplishes all students' learning.

The pedagogy standards describe what teachers do to assist students' learning in the same way that content standards address broad curriculum goals for what instruction should address. Performance standards describe concrete examples and specific definitions of student proficiency, and opportunity-to-learn standards describe capacity to ensure equal access to education as defined by standards (McLaughlin & Shepard, 1995). Together, all the standards, including the pedagogy standards, make a compelling promise for actually achieving standards-based teaching reform that makes a difference for all students.

Note

1. *Teaching Alive!* (Dalton & Stoddart, 1998) is an interactive CD-ROM containing many video clips of examples of the enactment of the standards, as well as discussions, transcriptions, associated activities, and both theoretical and research papers and bibliographies. It is available for both Macintosh OS and Windows 95 from CREDE Dissemination Coordinator, Center for Applied Linguistics, 4646 40th Street NW, Washington DC 20016-1859; phone 202-362-0700; e-mail crede@cal.org.

References

Allington, R. (1990). Children who find learning to read difficult: School responses to diversity. In E.H. Hiebert (Ed.), *Literacy for a diverse society: Perspectives, programs, and policies* (pp. 237-252). Bristol, PA: Palmer.

Au, K. (1980). Participation structures in a reading lesson with Hawaiian children: Analysis of a culturally appropriate instructional event. *Anthropology and Education Quarterly, 11*(2), 91-115.

August, D., & Hakuta, K. (1997). *Improving schooling for language-minority children: A research agenda.* Washington, DC: National Academy Press.

Brown, A. L., & Campione, J.C. (1994). Guided discovery in a community of learners. In K. McGilly (Ed.), *Classroom lessons: Integrating cognitive theory and classroom practice* (pp. 229-271). Boston, MA: The MIT Press.

Brown, D.A., Stein, M.K., & Forman, E. (1996). Assisting teachers and students to reform the mathematics classroom. *Educational Studies in Mathematics, 31*, 63-93.

Bruer, J.T. (1993, Spring). Schools for thought: A science of learning in the classroom. *The Catalyst, 5*, 3-7.

Cazden, C. (1986). Classroom discourse. In M.S. Wittrock (Ed.), *Handbook of research on teaching* (3rd ed.). New York: Macmillan.

Chamot, A.U. (1992). Learning and problem solving strategies of ESL students. *Bilingual Research Journal, 16*, 3-27.

Chisholm, I.M. (1995/6). Computer use in a multicultural classroom. *Journal of Research on Computing in Education, 28*, 162-174.

Cobb, P. (1994). Where is the mind? Constructivist and sociocultural perspectives on mathematical development. *Educational Researcher, 23*(7), 13-20.

Dalton, S.S. (1986, November). *Pre-service teacher education for the minority student (PETOM).* Paper presented at the Conference on Children and Youth At-Risk, Honolulu, HI.

Dalton, S.S., Blaine, D., & Tharp, R.G. (1987). Training teachers of the minority student: The University of Hawaii/KEEP Partnership. Paper presented at the annual meeting of the American Educational Research Association, Washington, DC.

Dalton, S.S., & Moir, E. (1992). Evaluating limited English proficient (LEP) teacher training and in-service programs. In *Proceedings of the Second National Research Symposium on Limited English Proficient Student Issues: Focus on Evaluation and Measurement* (pp. 415-445). Washington, DC: U.S. Department of Education, Office of Bilingual Education and Minority Languages Affairs.

Dalton, S.S., & Moir, E. (1996). Text and context for professional development of new bilingual teachers. In M. McLaughlin (Ed.), *Teacher learning: New policies, new practices* (pp. 126-133). New York: Teachers College Press.

Dalton, S.S., & Sison, J. (1995). *Enacting instructional conversation in math with Spanish-speaking language minority students* (Research Rep. No. 12). Santa Cruz, CA and Washington, DC: National Center for Research on Cultural Diversity and Second Language Learning. (Available from Dissemination Coordinator, CREDE, 4646 40th Street NW, Washington DC 20016-1859)

Dalton, S.S., & Stoddart, T. (1998). *Teaching Alive!* [CD-ROM]. Santa Cruz, CA: California Consortium for Teacher Development (CCTD) and Center for Research on Education, Diversity & Excellence (CREDE). (Available from Dissemination Coordinator, CREDE, 4646 40th Street NW, Washington DC 20016-1859)

Dalton, S.S., & Youpa, D. (1998). Standards-based teaching reform in Zuni Pueblo middle and high schools. *Journal of Equity and Excellence in Education, 31*(1), 55-68.

Darling-Hammond, L. (1997). *Doing what matters most: Investing in quality teaching.* New York: The National Commission on Teaching & America's Future.

Darling-Hammond, L., & Falk, B. (1997). Using standards and assessments to support student learning. *Phi Delta Kappan, 79*(3), 190-199.

Duran, R., Escobar, F., & Wakin, M. (1996). Aiming for college: Improving classroom instruction for Latino elementary school students. *ETS Policy Notes, 8*(1), 9-11.

Eriacho, M., Gchachu, K., & Jaramillo, O. (1991). Integrating home and community into the curriculum: The Zuni experience. In *Insights* (pp. 3-8). Grand Forks, ND: University of North Dakota, Center for Teaching and Learning.

Erickson, F., & Mohatt, J. (1982). Cultural organization of participant structure in two classrooms of Indian students. In G.D. Spindler (Ed.), *Doing the ethnography of schooling: Educational anthropology in action* (pp. 132-175). New York: Holt, Rinehart & Winston.

Evertson, C.M., Weeks, K.W., & Randolph, C.H. (1997). *Creating learning-centered classrooms: Implications for classroom management.* Working paper commissioned by the Blue Ribbon Schools Program. Washington, DC: U.S. Department of Education.

Finn, L. (1997). ACT programs help Taunton students learn to use their minds. *Activity, 35*(2), 4.

Gallimore, R., & Goldenberg, C. (1996). Accommodating cultural differences and commonalties in educational practice. *Multicultural Education, 4*(1), 16-19.

Goertz, M.E., Floden, R.E., & O'Day, J. (1996). *Systemic reform: Studies of education reform.* Washington, DC: U.S. Department of Education.

González, N., Moll, L.C., Floyd-Tenery, M., Rivera, A., Rendón, P., Gonzales, R., & Amanti, C. (1993). *Teacher research on funds of knowledge: Learning from households* (Educational Practice Report 6). Santa Cruz, CA and Washington, DC: National Center for Research on Cultural Diversity and Second Language Learning. (Available from Dissemination Coordinator, CREDE, 4646 40th Street NW, Washington DC 20016-1859)

Harper, D. (1996/7). Students as change agents. *Edutopia: The Newsletter of the George Lucas Educational Foundation, 4*(2), 4-5.

Hart, B., & Risley, T.R. (1995). *Meaningful differences in the everyday experiences of American children*. New York: P.H. Brookes.

Hilberg, R. (1998). *Standards-based mathematics instruction for American Indian students*. Unpublished master's thesis, University of California at Santa Cruz Department of Education.

Hilberg, R., Doherty, R.W., Dalton, S.S., Youpa, D., & Tharp, R.G. (1998). Standards for effective mathematics education for American Indian students. In J.T. Hankes & G.R. Fast (Eds.), *Changing the faces of mathematics: North American indigenous people's perspective, vol. 5*.

Hovenic, G. (1996/7). Discoveries along the education superhighway. *Edutopia: The Newsletter of the George Lucas Educational Foundation, 4*(2), 3,10.

Langdon, D.A. (1997). Poll of teachers' attitudes toward the public schools. *Phi Delta Kappan, 79*, 212-220.

Lee, C.D. (1995). A culturally based cognitive apprenticeship: Teaching African American high school students skills in literary interpretation. *Reading Research Quarterly, 30*(4), 608-630.

Leont'ev, A.N. (1981). The problem of activity in psychology. In J.V. Wertsch (Ed.), *The concept of activity in Soviet psychology*. Armonk, NY: Sharpe.

Linder-Scholer, B. (1996). *Industry's role in standards-based systemic reform, for K-12 mathematics, science and technology education. A look at industry and community commitment to educational systemic reform. A handbook. College Park, MD: Triangle Coalition for Science and Technology Education*.

Linguistic Minority Research Institute (LMRI), University of California, Santa Barbara. (1995). *Newsletter, 4*(d).

Lorenzen, N. (1996, December). *The bilingual integrated curriculum project. Education in Action. Annual Report for the division of Education, University of California, Davis*, pp. 7-11.

McLaughlin, M., & Talbert, J.E. (1993). *Contexts that matter for teaching and learning: Strategic opportunities for meeting the nation's educational goals*. Stanford, CA: Stanford University, Center for Research on the Context of Secondary School Teaching.

McLaughlin, M.W., & Shepard, L.A. (1995). *Improving education through standards-based reform*. A report by the National Academy of Education Panel on Standards-Based Education Reform. Palo Alto, CA: Stanford University.

Means, B., & Knapp, M.S. (1991). Models for teaching advanced skills to educationally disadvantaged children. *Teaching advanced skills to educationally disadvantaged children*. Washington, DC: U.S. Department of Education, Office of Planning.

Milk, R. (1990). Preparing teachers for effective bilingual instruction. In M. McGroarty & C. Faltis (Eds.), *Languages in school and society*. New York: Mouton de Gruyter.

Moll, L.C. (Ed.). (1990). *Vygotsky and education: Instructional implications and applications of sociohistorical psychology*. New York: Cambridge University Press.

Moll, L.C., Amanti, C., Neff, D., & Gonzalez, N. (1992). Funds of knowledge for teaching: Using a qualitative approach to connect homes and classrooms. *Theory Into Practice, 31*(2), 132-141.

Murphy, S. (1997, March 25). Hands-on learning helps North Chicago scores soar. *Chicago Tribune,* section 2, p. 5.

National Commission on Teaching & America's Future (NCTAF). (1996). *What matters most: Teaching for America's future* (Summary Report). New York: Author.

National Commission on Teaching & America's Future (NCTAF). (1996). *What matters most: Teaching for America's future.* New York: Author.

National Council of Teachers of Mathematics. (1991). *Professional standards for teaching mathematics.* Reston, VA: Author.

National Research Council. (1996). *National science education standards.* Washington DC: National Academy Press.

Noddings, N. (1997). Thinking about standards. *Phi Delta Kappan, 79*(3), 184-189.

Osborne, B. (1989). Cultural congruence, ethnicity, and fused biculturalism: Zuni and Torres Strait. *Journal of American Indian Education, 28*(2), 7-20.

Ostler, J. (1992). The village of Zuni: Cultural independence at a trade crossroads. *The Highway 53 Express Visitor Guide.* Pine Hill, NM: Thunder Hooves.

Padron, Y.N. (1992). The effect of strategy instruction on bilingual students' cognitive strategy use in reading. *Bilingual Research Journal, 16*(3&4), 35-51.

Philips, S.U. (1983). *The invisible culture: Communication in classroom and community on the Warm Springs Indian Reservation.* New York: Longman Press.

Piaget, J. (1971). *Biology and knowledge: An essay on the relations between organic regulations and cognitive processes.* Chicago: University of Chicago Press.

Preston, V. (1991). *Mathematics and science curricula in elementary and secondary education for American Indian and Alaska Native students.* Washington, DC: U.S. Department of Education, Indian Nations At Risk Task Force.

Puchner, L.D., & Hardman, J. (1996, Fall). Family literacy in a cultural context. *NCAL Connections: Newsletter of the National Center on Adult Literacy, University of Pennsylvania,* pp. 1-3.

Purcell-Gates, V. (1995). *Other people's words: The cycle of low literacy.* Cambridge, MA: Harvard University Press.

Ramirez, J.D., Yuen, S.D., & Ramey, D.R. (1991). *Final report: Longitudinal study of structured English immersion strategy, early-exit and late-exit transitional bilingual education programs for language-minority children* (Contract No. 300-87-0156). Washington, DC: U.S. Department of Education.

Rasmussen, K. (1997, Spring). Writing across the curriculum. *Curriculum Update, A Supplement to Education Update, Association for Supervision and Curriculum Development,* p. 7.

Rogoff, B., Matusov, E., & White, C. (1996). Models of teaching and learning: Participation in a community of learners. In D. Olson & N. Torrance (Eds.), *Handbook of education and human development: New models of learning, teaching and school.* Cambridge, MA: Basil Blackwell.

Rollefson, M.R., & Broughman, S.P. (1995). *Teacher supply in the United States: Sources of newly hired teachers in public and private schools, 1988-1991* (NCES Publication No. 95-348). Washington, DC: U.S. Government Printing Office.

Rosebery, A.S., Warren, B., & Conant, F. (1992). *Appropriating scientific discourse: Findings from language minority classrooms* (Research Rep. No. 3). Santa Cruz, CA and Washington, DC: National Center for Research on Cultural Diversity and Second Language Learning. (Available from Dissemination Coordinator, CREDE, 4646 40th Street NW, Washington DC 20016-1859)

Rutledge, M. (1997). Reading the subtext on gender. *Educational Leadership, 54* (7), 71-73.

Schempp, N. (1996/7). Becoming real scientists and mathematicians. *Edutopia: The Newsletter of the George Lucas Educational Foundation, 4*(2), 8-10.

Secada, W.G. (1991). Student diversity and mathematics education reform. In L. Idol & B.F. Jones (Eds.), *Educational values and cognitive instruction: Implications for reform* (pp. 297-332). Hillsdale, NJ: Erlbaum.

Snyder, T.D., & Hoffman, C.M., (1995). *Digest of education statistics* (NCES Publication No. 95-029). Washington, DC: U.S. Government Printing Office.

Swisher, K., & Deyhle, D. (1992). Adapting instruction to culture. In J. Reyhner (Ed.), *Teaching American Indian students* (pp. 81-95). Norman, OK: University of Oklahoma Press.

Teachers of English to Speakers of Other Languages. (1996). *Guidelines for the certification and preparation of teachers of English to speakers of other languages in the United States.* Alexandria, VA: Author.

Tharp, R.G. (1989). Psychocultural variables and constants: Effects on teaching and learning in schools. *American Psychologist, 44*, 349-359.

Tharp, R.G., Dalton, S.S., & Yamauchi, L. (1994). Principles for culturally compatible Native American education. *Journal of Navajo Education, 11*(3), 33-39.

Tharp, R.G., & Gallimore, R. (1989). *Rousing minds to life: Teaching, learning, and schooling in social context.* New York: Cambridge University Press.

Vogt, L.A., Jordan, C., & Tharp, R.G. (1992). Explaining school failure, producing school success: Two cases. In E. Jacob & C. Jordan (Eds.), *Minority education: Anthropological perspectives* (pp. 53-66). Norwood, NJ: Ablex. (Reprinted from *Anthropology & Education Quarterly, 18*, 276-286)

Vygotsky, L.S. (1978). *Mind in society: The development of higher psychological processes* (M. Cole, V. John-Steiner, S. Scribner, & E. Souberman, Eds. and Trans.). Cambridge, MA: Harvard University.

APPENDIX A

PEDAGOGY STANDARDS and INDICATORS

Standard I. Joint Productive Activity (JPA): Teacher and Students Producing Together

Facilitate learning through joint productive activity among teacher and students.

Indicators The teacher:

1. designs instructional activities requiring student collaboration to accomplish a joint project.
2. matches the demands of the joint productive activity to the time available.
3. arranges classroom seating to accommodate students' individual and group needs to communicate and work jointly.
4. participates with students in joint productive activity.
5. organizes students in a variety of groupings, such as by friendship, mixed academic ability, language, project, or interests, to promote interaction.
6. plans with students how to work in groups and move from one activity to another, such as from large group introduction to small group activity, for clean-up, dismissal, and the like.
7. manages student and teacher access to materials and technology to facilitate joint productive activity.
8. monitors and supports student collaboration in positive ways.

Standard II. Developing Language and Literacy Across the Curriculum (LLD)

Develop competence in the language and literacy of instruction across the curriculum.

Indicators The teacher:

1. listens to student talk about familiar topics such as home and community.
2. responds to students' talk and questions, making "in-flight" changes that directly relate to students' comments.
3. assists language development through modeling, eliciting, probing, restating, clarifying, questioning, and praising, as appropriate in purposeful conversation.
4. interacts with students in ways that respect students' preferences for speaking style, which may be different from the teacher's, such as wait-time, eye contact, turn-taking, spotlighting.
5. connects student language with literacy and content area knowledge through speaking, listening, reading, and writing activities.
6. encourages students to use content vocabulary to express their understanding.
7. provides frequent opportunities for students to interact with each other and with the teacher during instructional activities.
8. encourages students' use of first and second languages in instructional activities.

Standard III. Making Meaning (MM): Connecting School to Students' Lives

Connect teaching and curriculum with experiences and skills of students' home and community.

Indicators The teacher:

1. begins with what students already know from home, community, and school.
2. designs instructional activities that are meaningful to students in terms of local community norms and knowledge.

3. learns about local norms and knowledge by talking to students, parents, and community members, and by reading pertinent documents.
4. assists students to connect and apply their learning to home and community.
5. plans jointly with students to design community-based learning activities.
6. provides opportunities for parents to participate in classroom instructional activities.
7. varies activities to include students' preferences, from collective and cooperative to individual and competitive.
8. varies styles of conversation and participation to include students' cultural preferences, such as co-narration, call-and-response, and choral, among others.

Standard IV. Teaching Complex Thinking (CT)

Challenge students toward cognitive complexity.

Indicators The teacher:

1. assures that students, for each instructional topic, see the whole picture as the basis for understanding the parts.
2. presents challenging standards for student performance.
3. designs instructional tasks that advance student understanding to more complex levels.
4. assists students to accomplish more complex understanding by relating to their real-life experience.
5. gives clear, direct feedback about how student performance compares with the challenging standards.

Standard V. Teaching Through Conversation (IC)

Engage students through dialogue, especially the Instructional Conversation.

Indicators The teacher:

1. arranges the classroom to accommodate conversation between the teacher and a small group of students on a regular and frequent schedule.
2. has a clear academic goal that guides conversation with students.
3. ensures that student talk occurs at higher rates than teacher talk.
4. guides conversation to include students' views, judgments, and rationales, using text evidence and other substantive support.
4. ensures that all students are included in the conversation according to their preferences.
5. listens carefully to assess levels of students' understanding.
6. assists students' learning throughout the conversation by questioning, restating, praising, encouraging, and so forth.
7. guides the students to prepare a product that indicates the Instructional Conversation's goal was achieved.

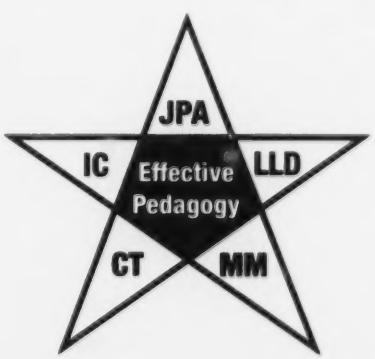
JPA = Joint Productive Activity

LLD = Language and Literacy Development

MM = Making Meaning

CT = Complex Thinking

IC = Instructional Conversation



APPENDIX B

GUIDELINES FOR ORGANIZING TODAY'S CLASSROOM ACTIVITY SETTINGS

The following guidelines are to help you arrange your classroom furniture and equipment into activity settings for Joint Productive Activity. The guidelines suggest arrangements to encourage students' independence, community participation, and teachers' needs to interact with students in a variety of formats, particularly Joint Productive Activity (JPA) and Instructional Conversation (IC). Each classroom has its own special features to consider in addition to those listed here. Every teacher makes arrangements for student travel, materials management, and storage, as needed.

_____ Assign every student a homeroom seat.

_____ Decide how students will store and carry their materials (folder, writing equipment).

_____ Make an activity setting (AS) available for large group instructional activity. For elementary students, this may be a rug area on the floor. In other classrooms, students must be able to look at the teacher easily from their seat. Avoid seating students with their backs to the place the teacher will occupy for large group or other transactions.

_____ Arrange an AS for the teacher to work with a small group (3-7) of students regularly that has writing display areas (boards, charts) and materials storage space. This instructional setting is in addition to and separate from the teacher's desk.

_____ Make several ASs available for small group work, dyads, and individual instructional activity.

_____ Assure that every AS work area is visible from any position the teacher will occupy to facilitate monitoring of student activity.

_____ Separate quiet ASs from potentially noisy ones.

_____ Provide equipment such as task cards, bins, boxes for placing individual/group assignments, storing students' folders and texts for each AS planned.

_____ Match furniture to requirements of each AS:

_____ a. Most ASs need seating for 3 or more students.

_____ b. Each AS needs easily accessible storage and retrieval for materials.

_____ c. Art, listening, other activities need sink, electric plug, or other prep/clean-up areas.

_____ d. Games may be placed on the floor or a rug/remnant.

_____ e. Technology needs electricity, hook-ups, supplies, ease of access.

_____ Check that traffic patterns provide easy movement between ASs.

_____ Arrange for space for posting materials or needed equipment like charts, semantic webs, other joint products.

_____ Provide students with folders to house their work in progress and their routing plan or contract for the week. Students keep this folder with them during class.

_____ Designate a storage place for student folders.

_____ Designate a place for student work to be turned in daily for review.

_____ Provide mailboxes, folder system, or other arrangement for returning student work. Students retrieve their teacher and/or peer reviewed work from this system daily.

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